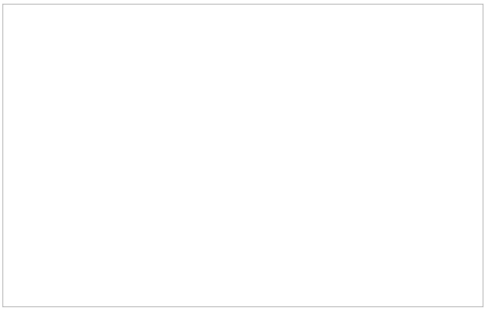
University nuclear experiments selected for Idaho National Laboratory testing

IDAHO FALLS - Four university-led teams will perform nuclear materials research experiments in Idaho National Laboratory's Advanced Test Reactor (ATR) this year. These university experiments are the first selected by the ATR National Scientific User Facility, Scientific Director Todd Allen announced Wednesday. He also announced that the User Facility's Summer Session has selected 25 participants from academia to attend the June 16-20 educational session in Idaho Falls.

The ATR User Facility offers some of the most advanced nuclear fuels and materials testing and post-irradiation examination facilities and capabilities in the country.

"I'm excited to have these four university experiments selected for testing and examination this year through the National Scientific User Facility program. We were able to select from 19 strong technical proposals," said Allen.



Todd Allen aid the User Facility Summer Session "...is above and beyond what you can get in a typical university curriculum."

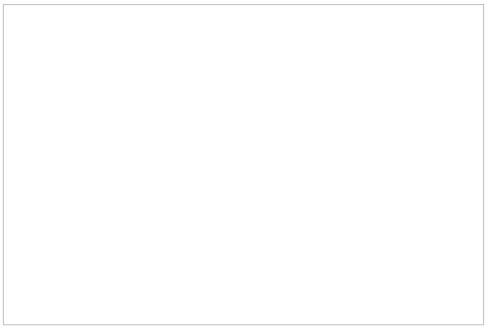
"The four experiments selected this year are only the first of many experiments from universities and industry that will be brought to our facilities in the coming years. The information gathered from these experiments will help advance nuclear energy research in the U.S., and help develop material science solutions to fundamentally change the way nuclear power plants are operated," he said.

The four university-led teams will test the following materials in ATR experiments:

- University of Florida - inert matrix ceramic fuel for destruction of plutonium and minor actinides;
- University of Illinois - fundamental investigations of the irradiation behavior of iron-chromium alloys;
- North Carolina State University - irradiation behavior of nanostructured metals and alloys;
- University of California-Santa Barbara - characterization of advanced structural alloys under irradiation.

The ATR User Facility was established by the U.S. Department of Energy in 2007 to support U.S. leadership in nuclear science and technology. By making access easier for new research users - universities, laboratories and industry - the ATR will support basic and applied nuclear research and development, further President Bush's Advanced Energy Initiative and help ensure the nation's energy security.

Each university team will work with INL to design its experiments. Laboratory engineers will conduct rigorous safety evaluations of the experiments and then place them in the Advanced Test Reactor for irradiation. Once the irradiation is completed, the experiments will be removed and the university team and INL staff will conduct post-irradiation examination at INL's Hot Fuel Examination Facility. Results of the test will be jointly published in the open scientific literature.



"The User Facility is the first major way of engaging the university community and essentially giving them free time in the reactor," Facility Director Todd Allen said.

The ATR is a versatile fuels and materials test reactor that can subject experiments to high levels of irradiation. Often referred to as a "time machine," ATR is able to duplicate, in weeks or months, the effects of irradiation that material would receive in years of use in a radiation environment, such as a commercial nuclear reactor.

The June 16-20 Summer Session is intended for nuclear energy researchers interested in materials, fuels and modeling. The session will serve as an introduction to User Facility capabilities, safety and engineering, as well as provide an overview of other facilities at INL associated with post-irradiation/analytical analysis of experiments.

Universities that will be represented at the session are:

Two students each from Texas A&M University, University of Florida, University of Central Florida, University of Michigan-Ann Arbor and University of Wisconsin-Madison.

One each from Boise State University, Ohio State University, Georgia Institute of Technology, Iowa State University, Massachusetts Institute of Technology, North Carolina State, Purdue University, Rensselaer Polytechnic Institute, University of California-Davis, University of California-Berkeley, University of Illinois-Urbana, University of Kentucky, University of Missouri, University of South Carolina, and University of Utah.

In addition to tours of the research reactor and post-irradiation examination facilities, participants will attend sessions on

- Basics of irradiation damage and corrosion in reactor materials
- Light-water reactor fuels and materials
- Fast reactor fuels and materials
- Fuel and material modeling
- Gas reactor fuels
- Fundamentals of conducting a reactor experiment
- Capabilities of the User Facility for irradiation testing and post-irradiation examination.

An interview with Todd Allen is posted on the ATR NSUF Web page.

View the Video (7.0MB WMV)

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